Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An apparatus for use in managing objects, the apparatus comprising:

a plurality of clusters, each cluster comprising a plurality of objects;

a first data structure indicating a state of the objects;

a second data structure indicating the state of the clusters; and

a counter indicative of a number of sets of adjacent bits that are set in words of the second data structure,

wherein each word comprises a plurality of bits.

2. (Previously presented) The apparatus of claim 1, further comprising a plurality of containers populated by the clusters and control data associated with the containers.

3. (Previously presented) The apparatus of claim 1, further comprising a plurality of containers populated by the clusters and wherein at least some containers comprise files.

4. (Original) The apparatus of claim 3, wherein the file is a page file or a swap file.

5. (Original) The apparatus of claim 3, wherein the objects comprise slots in the file.

6. (Original) The apparatus of claim 1, wherein each cluster comprises 16 objects.

7. (Original) The apparatus of claim 1, wherein at least one of the first and second data structures comprises a bitmap.

8. (Previously presented) The apparatus of claim 1, further comprising at least one other counter selected from the group consisting of:

a counter of how many free pages a cluster has; and

a counter of how many free clusters are in the container.

9. (Original) The apparatus of claim 8, further comprising at least one data structure containing information indicating that:

the second data structure contains clusters of at least four adjacent free bits;

the second data structure is not empty, but contains no clusters of four adjacent free bits;

the second data structure is empty, but allocation bitmap still shows free pages; or

the file is full or should not be used.

10. (Currently amended) An apparatus, comprising:

a plurality of files;

a plurality of clusters populating each file, each cluster comprising a plurality of slots;

an allocation bitmap indicating a state of the slots;

a directory bitmap indicating the state of the clusters and

a usage counter indicative of a number of sets of adjacent bits that are set in words of the directory bitmap,

wherein each word comprises a plurality of bits.

11. (Original) The apparatus of claim 10, wherein each file is a page file or a swap file.

12. (Original) The apparatus of claim 10, wherein each cluster comprises 16 slots.

13. (Previously presented) The apparatus of claim 10, further comprising at least one other usage counter selected from the group consisting of:

a counter of how many free slots a cluster has; and

a counter of how many free clusters are in the file.

14. (Original) The apparatus of claim 13, further comprising at least one data structure containing information indicating that:

the directory bitmap contains clusters of at least four adjacent free bits;

the directory bitmap is not empty, but contains no clusters of four adjacent free bits;

the directory bitmap is empty, but the allocation bitmap still shows free pages; or

the file is full or should not be used.

15. (Currently amended) A method for managing a plurality of clustered objects, the method comprising:

tracking a state for each of a plurality of objects in a first data structure;

tracking a state for cluster of the memory like objects in a second data structure;

consulting at least one of the first and second data structures to manage the objects and

consulting at least one usage counter to manage the objects, the at least one usage counter indicates how many sets of adjacent bits are set in words of the second data structure,

wherein each word comprises a plurality of bits associated with an implementation specific wordlength.

16. (Original) The method of claim 15, further comprising:

constructing the first data structure; and

constructing the second data structure.

17. (Previously presented) The method of claim 15, wherein tracking the state for each of the plurality of objects in the first data structure or tracking the state for cluster of the memory like objects in the second data structure includes tracking in a bitmap.

18. (Canceled).

19. (Previously presented) The method of claim 15, wherein consulting the at least one usage counter includes consulting at least one other usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clusters are in the file.

20. (Original) The method of claim 15, further comprising consulting at least one list containing information extracted from usage counters to manage the objects.

21. (Original) The method of claim 20, wherein consulting the at least one list includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the second data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the second data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the second data structure is empty, but allocation bitmap still shows free objects; or

a fourth list containing information indicating that the containers in this list are full or should not be used.

22. (Currently amended) A program storage medium encoded with instructions that, when executed by a computing device, perform a method for managing a plurality of clustered objects in a container, the method comprising:

tracking a state for each of a plurality of objects populating a container in a first data structure;

tracking a state for cluster of the objects in a second data structure;

consulting at least one of the first and second data structures to manage the objects; and

consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure,

wherein each word comprises a plurality of electronic bits.

23. (Original) The program storage medium of claim 22, wherein the encoded method further comprises:

constructing the first data structure; and

constructing the second data structure.

24. (Original) The program storage medium of claim 22, wherein tracking the state for each of the plurality of objects populating the container in the first data structure or tracking the state for cluster of the memory like objects in the second data structure in the encoded method includes tracking in a bitmap.

25. (Canceled).

26. (Previously presented) The program storage medium of claim 22, wherein consulting the at least one usage counter in the encoded method includes consulting another usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clust rs are in the file.

27. (Original) The program storage medium of claim 22, wherein the encoded method further comprises consulting at least one list containing information extracted from usage counters to manage the objects.

28. (Original) The program storage medium of claim 27, wherein consulting the at least one list in the encoded method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the second data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the second data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the second data structure is empty, but the allocation bitmap still shows free objects; or

a fourth list containing information indicating that the containers in this list are full or should not be used.

29. (Currently amended) A computing device programmed to perform a method for managing a plurality of clustered objects in a container, the method comprising:

tracking a state for each of a plurality of objects populating a container in a first data structure;

tracking a state for cluster of the memory like objects in a second data structure;

consulting at least one of the first and second data structures to manage the objects; and

consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure,

wherein the words each have a wordlength based on a maximum number of bits handled by a processor that executes an operating system.

30. (Original) The programmed computing device of claim 29, wherein the programmed method further comprises:

constructing the first data structure; and

constructing the second data structure.

31. (Original) The programmed computing device of claim 29, wherein tracking the state for each of the plurality of objects populating the container in the first data structure or tracking the state for cluster of the memory like objects in the second data structure in the programmed method includes tracking in a bitmap.

32. (Canceled).

33. (Previously presented) The programmed computing device of claim 29, wherein consulting the at least one usage counter in the programmed method includes consulting another usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clusters are in the file.

34. (Original) The programmed computing device of claim 29, wherein the programmed method further comprises consulting at least one list containing information extracted from usage counters to manage the objects.

35. (Original) The programmed computing device of claim 34, wherein consulting the at least one list in the programmed method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the second data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the second data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the second data structure is empty, but allocation bitmap still shows free objects; or

a fourth list containing information indicating that the containers in this list are full or should not be used.

36. (Currently amended) A method for managing a plurality of clustered slots in a file, the method comprising:

tracking a state for each of a plurality of slots populating a file in a allocation data structure;

tracking a state for cluster of the memory like objects in a directory data structure;

consulting at least one of the allocation and directory data structures to manage the slots; and

consulting at least one usage counter that indicates how many sets of adjacent binary bits are set in words of the directory structure.

37. (Original) The method of claim 36, further comprising:
constructing the allocation data structure; and
constructing the directory data structure.

38. (Original) The method of claim 36, wherein tracking the state for each of the plurality of slots populating the file in the allocation data structure or tracking the state for cluster of the memory like objects in the directory data structure includes tracking in a bitmap.

39. (Canceled).

40. (Currently amended) The method of claim 39, wherein consulting the at least one usage counter includes consulting another usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clusters are in the file.

41. (Original) The method of claim 36, further comprising consulting at least one list containing information extracted from usage counters to manage the slots.

42. (Original) The method of claim 41, wherein consulting the at least one list includes consulting a list selected from the group consisting of:

a first list containing information indicating that the directory data structure for files in this list contains clusters of at least four adjacent free bits;

a second list containing information indicating that the directory data structure for files in this list is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating that the directory data structure for files in this list is empty, but allocation bitmap still shows free slots; or

a fourth list containing information indicating that files in this list are full or should not be used.

43. (Currently amended) A program storage medium encoded with instructions that, when executed by a computing device, perform a method for managing a plurality of clustered slots in a file, the method comprising:

tracking a state for each of a plurality of slots populating a file in a allocation data structure;

tracking a state for cluster of the memory like objects in a directory data structure;

consulting at least one of the allocation and directory data structures to manage the slots; and

consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the directory structure,

wherein each word comprises a plurality of bits.

44. (Original) The program storage medium of claim 43, wherein the encoded method further comprises:

constructing the allocation data structure; and

constructing the directory data structure.

45. (Original) The program storage medium of claim 43, wherein tracking the state for each of the plurality of slots populating the file in the allocation data structure or tracking the state for cluster of the memory like objects in the directory data structure in the encoded method includes tracking in a bitmap.

46. (Canceled).

47. (Currently amended) The program storage medium of claim 436, wherein consulting the at least one usage counter in the encoded method includes consulting another usage counter selected from the group consisting of:

a counter of how many free slots a file has; and

a counter of how many free clusters are in the file.

48. (Original) The program storage medium of claim 43, wherein the encoded method further comprises consulting at least one list containing information extracted from usage counters to manage the slots.

49. (Original) The program storage medium of claim 48, wherein consulting the at least one in the encoded method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the directory data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the directory data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the directory data structure is empty, but allocation bitmap still shows free slots; or

a fourth list containing information indicating whether the file is full or should not be used.

50. (Previously presented) A computing device programmed to perform a method for managing a plurality of clustered slots in a file, the method comprising:

tracking a state for each of a plurality of slots populating a file in a allocation data structure;

tracking a state for cluster of the memory like objects in a directory data structure;

consulting at least one of the first and directory data structures to manage the slots and

consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the directory structure,

wherein each word comprises a plurality of bits.

51. (Original) The programmed computing device of claim 50, wherein the programmed method further comprises:

constructing the allocation data structure; and

constructing the directory data structure.

52. (Original) The programmed computing device of claim 50, wherein tracking the state for each of the plurality of slots populating the file in the allocation data structure or tracking the state for cluster of the memory like

objects in the directory data structure in the programmed method includes tracking in a bitmap.

53. (Canceled).

54. (Currently amended) The programmed computing device of claim 503, wherein consulting the at least one usage counter in the programmed method includes consulting another usage counter selected from the group consisting of:

a counter of how many free slots a file has; and

a counter of how many free clusters are in the file.

55. (Original) The programmed computing device of claim 50, wherein the programmed method further comprises consulting at least one list containing information extracted from usage counters to manage the slots.

56. (Original) The programmed computing device of claim 55, wherein consulting the at least one list in the programmed method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the directory data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the directory data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the directory data structure is empty, but allocation bitmap still shows free slots; or

a fourth list containing information indicating whether the file is full or should not be used.

57. (Previously presented) The apparatus of claim 1 wherein the number of sets of adjacent bits is selected from the group consisting of 2, 4, 8, 16, 32, and 64.